

Notice of Allowability

Application No.

10/722,352

Examiner

Angela J. Martin

Applicant(s)

NARAYANAN ET AL.

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 3/19/07.
2. ☒ The allowed claim(s) is/are 2-14.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input checked="" type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date <u>4/30/07</u> . |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____ |

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Please cancel non-elected, withdrawn claims 15-22.

REASONS FOR ALLOWANCE

2. The following is an examiner's statement of reasons for allowance:

The Applicant claims A fuel cell comprising an anode and a cathode, wherein said fuel cell is a liquid-feed fuel cell and having a polymer electrolyte membrane comprising a quaternized amine salt on a support matrix wherein the polymer electrolyte membrane is disposed between the anode and cathode.

Applicant claims a polymer electrolyte membrane comprising a quaternized amine salt on a support matrix, wherein the quaternized amine salt is selected from the group consisting of a poly-4-vinylpyridinebisulfate, a poly-4-vinylpyridinebisulfate silica composite, and a combination thereof.

The Applicant claims a polymer electrolyte membrane comprising a quaternized amine salt on a support matrix, wherein the support matrix is selected from the group consisting of a glass fiber matrix, a polybenzoxazole matrix, and a polybenzimidazole matrix.

Applicant claims a methanol fuel cell comprising: an anode; a cathode; a polymer electrolyte membrane comprising a quaternized amine salt on a support matrix and a proton-conducting membrane formed from said quaternized amine salt on a support matrix; and a pump element, in fluid communication with the anode.

The Applicant claims a polymer electrolyte membrane comprising a quaternized amine salt on a support matrix, wherein said amine salt is quaternized polyvinylpyridine polymer or composite.

In the prior art of record, Ostreicher et al., U.S. Pat. No. 4,711,793, teach a polymer electrolyte membrane comprising a quaternized amine salt on a support matrix.

However, the prior art of record, taken either alone or in combination, fails to suggest or render obvious a fuel cell comprising a polymer electrolyte membrane comprising a quaternized amine salt on a support matrix. The prior art of record does not disclose the quaternized amine salt is selected from the group consisting of a poly-4-vinylpyridinebisulfate, a poly-4-vinylpyridinebisulfate silica composite, and a combination thereof. The prior art of record does not disclose the support matrix is selected from the group consisting of a glass fiber matrix, a polybenzoxazole matrix, and a polybenzimidazole matrix.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

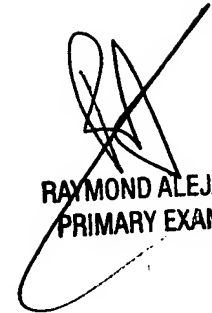
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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RAYMOND ALEJANDRO
PRIMARY EXAMINER